CHAPTER 14

COMMUNICATIONS

INTRODUCTION

Communications are vital for waterborne operations. Chapter 5 discusses communications for amphibious operations. Ship-to-ship and ship-to-shore communications can be by radio, radiotelephone, flag hoist, blinker signal lights, and CW Morse code. Vessel masters, mates, and watercraft operators must be thoroughly familiar with their communications equipment. Shipboard communications are essential in normal waterborne operations, combat support operations, distress situations, and/or sea-air rescue missions. The signal and navigation (SIGNAV) equipment provides secure/nonsecure, high to very high frequency (HF to VHF), short- and long-range communications capability appropriate for the mission capability of the LSVs, LCU 2000s, LT 128s, and other craft in the Army inventory. It can interface with US Navy, MSC, USCG, and merchant marine stations (shore and ship) and Military Afffiated Radio Stations (MARS) that will be used in joint operations, deployment, morale/welfare, and long-range missions.

The signal systems aboard Army watercraft vary in type and design (Figure 14-1). Basically, the systems must meet Army tactical communications requirements and federal regulations that govern vessel communications.

TACTICAL COMMUNICATIONS

Tactical radios communicate with higher headquarters, other Army vessels, and military units that are being supported. FM 55-501, Chapter 9 contains additional information on the various types of tactical radios used aboard Army vessels. Detailed information on a specific radio used for tactical communications is in the applicable TM for that particular system.

Currently the AN/VRC-46 FM radio set is installed as the tactical radio on most Army vessels. The Single-Channel Ground and Airborne Radio System (SINCGARS) will replace these radio systerns under approved fielding plans.

COMBAT NET RADIOS

AN/VRC-46
AN/VRC-80

MARINE COMMUNICATIONS (SHORT RANGE)

AN/URC-80
DSC-500

MARINE COMMUNICATIONS (LONG RANGE)

AN/URC-92
MSR 1020M Amplifier/MSR6212M Power Supply
MSR 5050A Receiver
MSR 8700 Exciter
MSR 6240 Remote Control Unit

Figure 14-1. Signal Systems Aboard Army Watercraft

MARINE COMMUNICATIONS

Code of Federal Regulations 47, Subparts R, S, T, and X delineate specific limitations and capabilities for marine communications. Vessels operating more than 20 miles off shore shall have a radiotelephone (HF range) with aminimum range of 150 nautical miles and not less than 60 watts peak power. This radio shall be able to communicate at least one ship-to-shore working frequency within 16.05 to 35 megahertz (MHz). The nonportable, bridge-to-bridge (VHF range) radio shall have not less than 8 watts and not more than 25 watts peak power. It must operate in the 156.0 to 162.0 MHz frequency range. Several radio systems are installed on Army vessels to meet the federal requirements for communications at sea. In addition, portable, hand-held radios are used for internal shipboard communication, as well as local, short-range ship-to-ship, ship-to-shore, and detached work boat communications.

Military research, development, and acquisition agencies are working together to reduce the cost of signal systems. They have determined that purchasing commercially-designed radios that meet military requirements can save money and provide high tech, state-of-the-art signal systems that meet federal communication regulation requirements for vessels. As a result, different signal systems may be on Army vessels such as those described below.

AN/URC-80(V1) Radiotelephone

Commonly called bridge-to-bridge, this radiotelephone is designed to communicate between ships and from ship to shore.

DSC-500 (Digital Selective Calling)

The DSC-500 provides the latest technology to Army watercraft communications. It will replace the AN/URC-80. The system provides the vessel master with 200 different communication call functions and is equipped with built-in test equipment.

High-Frequency Radio Systems

The high-frequency systems give Army vessels the capability to communicate over great distances. They can be used in both secure and nonsecure modes. There are two types found on Army watercraft today, depending on what type mission the vessel is expected to perform.

Radio set AN/URC-92 is a mobile, half-duplex, HF transceiver system that can be operated double sideband and/or upper or lower sideband (USB/LSB).

The other radio set is a commercially procured HF radio adapted for military use. It is a rugged, fully automated, solid-state, communications system. It is designed as a continuous duty, high-frequency, single sideband transceiver. It can also operate on USB, LSB, or CW for Morse code.

INTERNATIONAL MARITIME SATELLITE SYSTEMS (INMARSAT)

Future development for maritime communications capabilities include one set of INMARSAT, Standard A, single channel, ship earth station (SES) equipment to be installed on each Army designated vessel. Installation will include a stabilized tracking 85- to 100-centimeter dish antenna with radome and antenna cabling. Below decks equipment include transceiver, processor, telephone, and telex units. An auxiliary receiver tuned to the Armed Forces Radio and Television Service (AFRTS) broadcast frequency and connected to the INMARSAT SES is also available. A public automatic branch exchange (PABX) is provided to furnish additional phone and data line connections to the SES if desired.